

## PROPERTIES OF METALS and NON-METALS

| <b>Metals</b>              | <b>Non-metals</b>                              |
|----------------------------|--|
| <b>Solid</b>               | <b>Gases, liquids, solids</b>                  |
| <b>Shiny</b>               | <b>Usually not shiny</b>                       |
| <b>Conduct heat</b>        | <b>Does not conduct heat- insulator</b>        |
| <b>Conduct electricity</b> | <b>Does not conduct electricity- insulator</b> |
| <b>Malleable</b>           | <b>Not malleable</b>                           |
| <b>Ductile</b>             | <b>Not ductile</b>                             |

## **MORE PROPERTIES OF METALS AND NON-METALS**

| <b>Metals</b>   | <b>Non-metals</b>                                    |
|---|--|
| <b>1,2 or 3 valence electrons</b>                     | <b>4, 5, 6, 7, or 8 valence electrons</b>            |
| <b>low ionization energy</b>                          | <b>High ionization energy</b>                        |
| <b>forms metallic bonds in solid state</b>            | <b>Forms ionic or covalent bonds</b>                 |
| <b>lose electrons to form positive ions (cations)</b> | <b>Gain electrons to form negative ions (anions)</b> |